Abstract

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Title of diploma thesis: Evaluation of activity of potentional antibiotic substances through the use of microdilution broth method I

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Study program: Pharmacy

The aim of our thesis was to evaluate activity of potentially antibiotic substances on eight bacteria strains. We have tested 42 substances, all of them were synthesized at the Department of Inorganic And Organic Chemistry of Faculty of Pharmacy in Hradec Králové.

We have used the microdilution broth method for the evaluation. It is a standardize procedure for finding the minimal inhibitive concentration (MIC) of antibiotics (ATB) and thereby the quantitative sensitivity of bacteria to ATB. The principle of the method is the visual readout and evaluation of bacterial growth in wells of microtiter plate. The wells were filled with a live broth, an antibiotic substance and a microbe. The antibiotic effect of the substance was evaluated positive if it came to the visible inhibition of microbial growth in the well.

We have tested derivative of sulphonamides and salicylanilides. The substances were divided into 13 groups according to their structure. We have recorded the highest effect by derivatives *N*-phenyl-2-hydroxybenzamide, benzoic acid, furan-2-carboxyl acid and acrylic acid. The group of derivatives *N*-(1-phenylamine-3-methyl-1-oxobutane-2-yl)-2-hydroxybenzamide was almost ineffective.

On the basis of the results we have designated as the most sensitive strains *Staphylococcus aureus* and *Staphylococcus aureus* methicillin resistant. On the contrary the least sensitive was a frequent casual agent of nosocomial infections, the strain *Pseudomonas aeruginosa.*